

# THE MINERAL INDUSTRIES OF CAMEROON AND CHAD

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Cameroon and Chad are neighboring countries in central Africa. In 2003, the gross domestic product (GDP) at current prices of Cameroon was estimated have increased to more than \$12.5 billion compared with \$9.9 billion in 2002 and \$8.5 billion in 2001. In Chad, the GDP at current prices was estimated to have increased to more than \$2.6 billion compared with \$2.0 billion in 2002 and \$1.7 billion in 2001. In 2003, GDP based on purchasing-power-parity valuation was \$29.879 billion for Cameroon and \$9.297 billion for Chad (International Monetary Fund, 2004<sup>1</sup>). Both countries were members of the Monetary and Economic Community of Central Africa, the Central African States Development Bank, and several other international monetary organizations.

Most formal international trade with landlocked Chad was funneled through seaports in Cameroon and Nigeria. Cameroon and Chad were members of the African, Caribbean, and Pacific Group of States, the Group of 77, the United Nations Conference on Trade and Development, and the World Trade Organization. In 2003, the value of exports from Cameroon was estimated to be \$1.9 billion, and the value of exports from Chad was estimated to be \$365 million. Cameroonian exports included aluminum and crude oil; Chad exported primarily agricultural commodities. In 2003, imports to Cameroon were estimated to be \$2.0 billion compared with \$760 million to Chad.

The petroleum sectors were the most significant segments of the mineral industries of Cameroon and Chad. In Cameroon, however, the contribution of petroleum production and refining to the national economy has diminished as the economy has diversified and as crude oil output has dwindled from the peak production reached in the late 1980s. In Chad, on the other hand, oilfield development in the Doba Basin only began to significantly affect the Chadian economy in the past couple of years.

## Structure of the Mineral Industry

In Cameroon, the Ministry of Mines, Water, and Power was responsible for the administration of the mineral industry in accordance with the Mining Law of 2001 and the Petroleum Code of 2000. Compagnie Camérounaise de l'Aluminium and its subsidiary Société de Camérounaise de Transformation de l'Aluminium operated an aluminum smelter and a rolling mill at Edea. Cimentaries du Cameroun ran two cement plants. Numerous local operations produced industrial minerals. Offshore and onshore Cameroon, the state-owned Société Nationale des Hydrocarbures (SNH) was involved in hydrocarbon exploration and production with various joint ventures. Partners included Addax Petroleum Cameroon Ltd., Amerada Hess Corp., Fusion Oil and Gas NL, Mobil Producing Cameroon, Pecten Cameroon Co., Perenco Cameroon S.A., Petronas Carigali Overseas Sdh. Bhd., Phillips Petroleum Co. Cameroon, RSM Production Corp., Total Exploration and Production Cameroon, and Tullow Cameroon Ltd. All Cameroon's crude oil production was exported. The Société Nationale de Raffinage operated a refinery at Limbe, Cameroon, that was configured to process imported crude petroleum.

Previous geologic studies have identified a variety of mineralized areas in the central equatorial African region that include bauxite, diamond, granite, iron ore, nepheline syenite, rutile, tin, and uranium in Cameroon; and bauxite, columbium (niobium)-tantalum, diatomite, graphite, kaolin, limestone, marble, silica sand, soapstone, tin, and tungsten in Chad. There also were indications of chromite, copper, iron, lead, nickel, titanium, uranium, and zinc occurrences in Chad.

In Chad, the Ministry for Economic Promotion, Development and Cooperation, the Ministry of Mines and Energy, and the Ministry of Petroleum are responsible for developing policy that affect various sectors of the mineral industry. The Directorate for Geological and Mining Research organizes mineral sector investigations, and the Petroleum Directorate is responsible for the administration of the petroleum sector. Most minerals, such as clay, gold, natron (soda ash), salt, sand and gravel, and stone, were produced by small-scale local miners in Chad, although Global Resources Corp. continued to evaluate a small placer gold operation and, in 2003, Esso Exploration and Production Chad Inc. initiated crude oil production from the Doba Basin of southeast Chad.

## Commodity Review

### *Metals*

**Aluminum.**—In December 2003, Pechiney S.A. of France became a subsidiary of Alcan Inc. of Canada, which then co-owned and operated the aluminum smelter of Compagnie Camérounaise de l'Aluminium and the aluminum rolling mill of Société de Camérounaise de Transformation de l'Aluminium at Edea, Cameroon. Most of the smelter's demand for raw materials demand was met by imports, and all aluminum production was consigned to Pechiney.

**Cobalt and Nickel.**—In Cameroon, Geovic Cameroon, S.A. received a mining permit from the Government and secured partial funding for a feasibility study of its cobalt-nickel project in East Province. The company estimated resources of 240 million tons with

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<sup>1</sup> References that include a section mark (§) are found in the Internet References Cited section.

a grade of 0.6% nickel and 0.3% cobalt. Geovic proposed to begin mine construction in 2004, with initial production slated to begin in 2005 (Geovic, Ltd., 2003).

### ***Mineral Fuels***

**Natural Gas.**—Development of the Sanaga Sud Field offshore Cameroon by Euroil, Ltd. and Syntroleum Corp. progressed with the agreement that Syntroleum would study the feasibility of building a barge-mounted gas-to-liquids plant for the gasfield.

**Petroleum.**—Esso Exploration and Production Chad Inc. and partners completed the 1,070-kilometer (km) Chad-Cameroon crude oil pipeline ahead of schedule. Cameroon Oil Transportation Co. S.A. and Esso operated about 870 km of the pipeline in Cameroon, and Esso's joint venture with Tchad Oil Transportation Co. S.A. operated about 200 km of the pipeline in Chad. In Chad during 2003, Esso Chad drilled 115 of the proposed 265 wells in the Doba Basin oilfield development project. Initial oil production began in mid-2003. In July 2003, Esso Chad began to pump oil into the Chad-Cameroon pipeline. Oil had reached the marine terminal near Kribi, Cameroon, by September and the initial shipment of crude oil was loaded on a waiting oil tanker in October 2003 (Esso Exploration and Production Chad Inc., 2004§).

The World Bank Group (2004§, undated§) has assisted with the pipeline project's revenue management program in Chad. Oil revenue (which included dividends, customs duties, royalties, and taxes) will be deposited in an offshore escrow account. A "Future Generations Fund" would receive 10% of the dividends and royalties and 4.5% of the revenue was to be directed toward development of the Doba Basin region. Of the remaining revenue, 13.5% was to be allocated to the Government Treasury and 72% was to be earmarked for Government spending on rural development, education, environment, health, and infrastructure sectors. A nine-member independent oversight committee was to ensure that Chadian oil revenues were directed toward projects in each of these sectors. The oversight committee was to be advised by the U.S. Department of the Treasury and the World Bank. During the estimated 25-year life of the oil development project, Chad was expected to earn \$2 billion from oil production, and Cameroon, \$500 million primarily from transit fees on oil exported through Cameroon's section of the pipeline (World Bank Group, 2003§).

In Chad, there was little progress on the redevelopment of the Sedigui oilfield and construction of a small oil refinery at Farcha.

### **Reference Cited**

Geovic, Ltd., 2003, Mining permit granted to Geovic Cameroon on world's largest primary cobalt deposit: Grand Junction, Colorado, Geovic, Ltd. press release, April 14, 1 p.

### **Internet References Cited**

Esso Exploration and Production Chad Inc., 2004, Chad/Cameroon development project report No. 13, 4th quarter 2003 and annual summary 2003, accessed March 19, 2004, at URL [http://www.essochad.com/Chad/Files/Chad/13\\_allchapters.pdf](http://www.essochad.com/Chad/Files/Chad/13_allchapters.pdf).

International Monetary Fund, 2004 (April), Gross domestic product—Current prices, World economic outlook database, accessed April 22, 2004, at URL <http://www.imf.org/external/pubs/ft/weo/2004/01/data/index.htm>.

World Bank Group, 2003 (November 26), Payment from Chad's first oil sale deposited in escrow account, accessed January 15, 2004, at URL <http://www.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/CHADEXTN/0,,contentMDK:20142574~menuPK:349895~pagePK:141137~piPK:141127~theSitePK:349862,00.html>.

World Bank Group, 2004, The Chad-Cameroon petroleum development and pipeline project, accessed June 26, 2004, at URL <http://www.worldbank.org/afr/ccproj>.

World Bank Group, undated, The Chad-Cameroon pipeline project fact sheet, accessed June 26, 2004, at URL [http://www.ifc.org/ifcext/eir.nsf/AttachmentsByTitle/ChadCameroonPipeline1/\\$FILE/CHAD+CAMEROON+PIPELINE+FACT+SHEET.pdf](http://www.ifc.org/ifcext/eir.nsf/AttachmentsByTitle/ChadCameroonPipeline1/$FILE/CHAD+CAMEROON+PIPELINE+FACT+SHEET.pdf).

### **Major Sources of Information**

Direction de Recherche des Mines et de la Géologie

Ministère de Mines de l'Energie

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N'Djamena, Chad

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Direction du Pétrole

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Ministère de Mines, de l'Eau et de l'Energie

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TABLE 1  
CAMEROON: ESTIMATED PRODUCTION OF MINERAL COMMODITIES <sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	1999	2000	2001	2002	2003
Aluminum metal, primary	90,410 <sup>4</sup>	86,384 <sup>4</sup>	80,900 <sup>4</sup>	67,000 <sup>r</sup>	77,000
Cement, hydraulic	850,000 <sup>4</sup>	890,000 <sup>4</sup>	930,000 <sup>4</sup>	950,000	930,000
Clay	13,472 <sup>4</sup>	21,558 <sup>4</sup>	22,000	22,000	22,000
Gold, mine output, Au content kilograms	1,000	1,000	1,000	1,000	1,000
Petroleum:					
Crude thousand 42-gallon barrels	34,700	32,100	29,200	26,200 <sup>r</sup>	25,000
Refinery products do.	12,000	15,000	12,000	12,000	13,000
Pozzolana, ash for cement	631,740 <sup>4</sup>	604,960 <sup>4</sup>	600,000	620,000	600,000
Sand	36,658 <sup>4</sup>	35,078 <sup>4</sup>	35,000	40,000	35,000
Silica sand	16,088 <sup>4</sup>	--	--	--	--
Stone:					
Limestone	168,411 <sup>4</sup>	258,517 <sup>4</sup>	260,000	260,000	260,000
Marble	24,065 <sup>4</sup>	21,165 <sup>4</sup>	20,000	20,000	20,000

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Includes data available through May 20, 2004.

<sup>2</sup>Estimated data are rounded to no more than three significant digits.

<sup>3</sup>In addition to the commodities listed, a variety of industrial minerals and construction materials (aggregate, gypsum, and stone) are produced, and bauxite may be produced, but information is inadequate to make reliable estimates of output.

<sup>4</sup>Reported figure.

TABLE 2  
CAMEROON AND CHAD: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Metric tons unless otherwise specified)

Commodity		Major operating companies and and major equity owners	Location of main facilities	Annual capacity
<b>CAMEROON</b>				
Aluminum metal:				
Primary		Compagnie Camérounaise de l'Aluminium (Government, 53%, and Alcan, Inc., 47%)	Smelter at Edea	95,000
Secondary		Compagnie Camérounaise de l'Aluminium (Government, 53%, and Alcan, Inc., 47%)	Edea	8,000 <sup>1</sup>
Aluminum products		Société de Camérounaise de Transformation de l'Aluminium (Alcan Inc., 53%; Government, 42%; Aluminium Pechiney, 5%)	Rolling mill at Edea	NA
Cement		Cimentaries du Cameroun (Lafarge Group, 57%)	Bonaberi Mill near Douala and the Figuil kiln and mill at Garoua	1,100,000
Gold	kilograms	Artisanal placer operations	Various locations	1,000
Petroleum, crude	42-gallon barrels per day	Total Exploration and Production Cameroun (Total S.A., 100%)	About 21 oilfields, which included Bavo, Ekoundou Horst, Eloundou, Eloundou Nord Marine, Ekoundou Sud, Itindi, and Kombo Centre	50,000 <sup>2</sup>
Do.	do.	Pecten Cameroon Co. (Pecten International, 80%, and Société Nationale des Hydrocarbures, 20%)	Makoko Northeast and Makoko South Marine Fields	( <sup>2</sup> )
Do.	do.	Perenco Cameroon S.A. (Perenco Group, 100%)	Ebome and Moudi Fields	10,500
Petroleum products	do.	Société Nationale de Raffinage (Government, 66%)	Refinery at Limbe	42,000
<b>CHAD</b>				
Clay		Various local operators	Various locations	NA
Gold	kilograms	Artisanal placer operations	Mayo Dala Department	120
Do.		Global Resources Corp. (Afko Corea Ltd., 100%)	Ganboke	NA
Lime		Various local operators	Various locations	NA
Limestone		NA	Louga quarry	NA
Petroleum, crude	42-gallon barrels per day	Esso Exploration and Production Chad Inc. (Exxon Mobil Corp., 40%; Petronas Carigali Overseas Sdh. Bhd., 35%; Chevron Overseas Petroleum Inc., 25%)	Kome and Miandoum Fields, Doba Basin	75,000 <sup>3</sup>
Salt		Various local operators	Various locations	9,000
Sand and gravel		do.	Chari and Logone Rivers	300,000
Soda ash		do.	Lake Chad, near Liwa	12,000
Stone, crushed		NA	Mani quarry, Dandi	NA

NA Not available.

<sup>1</sup>May include aluminum alloys.

<sup>2</sup>Includes Pecten Cameroon production capacity.

<sup>3</sup>Expected to reach 225,000 barrels per day by 2005.